Teacher Notes
Grades 5–8 Activity 3

Put It to the Test

NJ Core Curriculum Standards:
- Collect and organize data to support the results of an experiment. (Science 5.2.8.)
- Show how substances can react with each other to form new substances having characteristic properties different from those of the original substances. (Science 5.8.5.)

GEPA in Science Content/Skill Outlines:
- Observe an object or event by using any of the senses or extensions of the senses to identify properties. (5.2.6.7.8.9.10.11—Skill)
- A chemical change occurs when materials form new substances with different properties. (5.8.4.5—Knowledge)

Teacher Background: Samples can be tested with a hydrochloric acid solution for the presence of the mineral calcite (calcium carbonate) because calcite reacts with acid, forming carbon dioxide gas. Lime sand and limestone should effervesce (bubble) quickly. Dolomite will not effervesce easily but may if you first break off a small piece and grind it into powder. *Teachers who have not had laboratory safety training can use white distilled vinegar instead of HCl, however, the reaction will be slower and less dramatic.*

Materials: Samples 1–17 from the New Jersey Rocks and Sediments kit diluted HCl (10 percent concentration) or white vinegar in a dropper bottle, 2 watch glasses or Petri dishes, sheet of black construction paper, goggles, protective gloves

Safety: Anyone handling HCl solutions must wear safety gloves, goggles, and a lab coat. Caution students to avoid inhaling fumes. Clean up spills with water. Have students wash their hands at the completion of the activity.

Advance Preparation: Remove a tiny amount of marble and dolomite by tapping these specimens on a ceramic plate. Brush the powders into separate watch glasses or Petri dishes. Place the glasses on a sheet of black construction paper to provide a dark background for contrast. Label each glass with the number of the sample the powder came from.

Directions: Instruct students to avoid getting acid on the samples' paper labels. To clean up, wipe off the mineral specimens with a damp paper towel and put them away. Have students wash their hands and all surfaces when they are finished.

Discussion/Journal Entry Questions:
- Which kinds of rock and sediments reacted to the acid? (*Analyzing Data*)
- How could you use this knowledge to identify rocks? (*Applying*)

Suggested Evaluation: Assess students' data tables for clarity and accuracy.

Name _____ Date _____

Student Activity Sheet for Activity 3

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The mineral calcite is hard to recognize by sight alone. It comes in many colors. It can be shiny or dull. The best way to find it is by doing the following chemical test. SAFETY: wear goggles and gloves when working with acids.

1. Put two drops of acid on a small sample of each sediment. Record in the table any changes you observe.

2. Find the number on each rock sample. Turn the rock over and put 2 drops of acid on the other side. Record your observations.

Sample	Sample Name	Observations (reaction to acid)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		